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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,933	12/03/2003	Wen-Kun Yang	25857	4487

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EXAMINER	
ZARNEKE, DAVID A	
ART UNIT	**PAPER NUMBER**
2891	

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/725,933	YANG ET AL.	
	Examiner	Art Unit	
	David A. Zarneke	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) *1-29,32,33 and 42-47* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30,31 and 34-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 3/20/06 have been fully considered but they are not persuasive.

Applicant makes two (2) arguments regarding the rejection of the claims.

The first argument is that Lee teaches forming the first contact conductive layer and the conductive lines are formed simultaneously and therefore go against the present claims recitation of forming them separately.

Please note that the present claims do not exclude forming the two layers simultaneously. The comprising language used in the claim plus the lack of a teaching of the criticality of forming the layers separately make the performing of them simultaneously within the scope of the claim. The claim merely states the presence of "a first contact conductive layer formed on said first openings to electrically coupling with said first pads, respectively; a first conductive lines formed on said second dielectric layer and corresponding said first contact conductive layer," doesn't preclude one from forming them simultaneously. Further, In re Tatincloux 108 USPQ 125 (CCPA 1955) states that the performance of two steps simultaneously, which have previously been performed in sequence, was held to have been obvious. Therefore, this argument is moot.

Further, also note that Lee does indeed teach forming the first contact conductive layer and the first conductive lines separately ([0035]).

The second argument is that the first contact conductive layer can act as a buffer for reducing stress and enhancing the adhesion between the first conductive lines and the first pads.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Further, Lee teaches the same materials for the first contact conductive layer ([0035]) as claimed in claim 37. Therefore, the first contact conductive layer of Lee inherently must have the same properties as presently claimed.

Claim Rejections - 35 USC § 112

The amendments to claims 34 and 36 overcome the 112 rejections, therefore they have been removed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 30, 31 and 34-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al., US Patent Application Publication 2003/0122243.

Lee (figures 1A-I) teaches a fan out type package structure, comprising:

an isolating base [110];

a die [120] adhered to said isolating base (figure 1A);

a first dielectric layer [130] formed on said isolating base and filled in a space except said first die on said isolating base (figure 1B);

a second dielectric layer [142] formed on said first dielectric layer and said first die, and said second dielectric layer having first openings [142a] on first pads of said first die (figure 1C);

a first contact conductive layer [142b] formed on said first openings to electrically coupling with said first pads (Figure 1D), respectively;

a first conductive lines [144] formed on said second dielectric layer and corresponding said first contact conductive layer, and said first conductive lines being extended out from corresponding said first contact conductive layer to corresponding first end points, wherein said corresponding first end points are inside a surface of said second dielectric layer (Figure 1D);

a first isolation layer [150] formed on said first conductive lines and said second dielectric layer, and said first isolation layer having second openings [148a] on said first conductive lines (figure 1G); and

solder balls [160] welded on said second openings and electrical coupling with said first conductive lines, respectively (figure 1H).

While Lee teaches an extra level of dielectric layer, contact conductive layer, and conductive line, the claim uses comprising language and therefore an extra level could be added. Also, the omission of an element with its consequent loss of function is within the level of ordinary skill (In re Wilson 153 USPQ 740 (CCPA 1967)).

Regarding claim 31, Lee teaches the surfaces of said first dielectric layer and said first die are at same level (figure 1B & [0032]).

With respect to claim 34, Lee teaches the said first die is formed by sawing a processed base ([0041]).

As to claim 35, while Lee fails to teach said processed base is back lapped to get a thickness of said processed base around 50-300 um, it would have been obvious to one of ordinary skill in the art at the time of the invention to back lapped to get a thickness of said processed base around 50-300 um because back lapping is a conventionally known in the art step used in semiconductor processing to form smooth mirror-like surface. The use of conventional steps to perform there known functions in a conventional process is obvious (MPEP 2144.07).

In re claim 36, Lee teaches the materials of said first dielectric layer [130] and said dielectric layer [142] comprise UV curing type material, heat curing type material, and the combination thereof ([0032] & [0033]).

Regarding claim 37, Lee teaches said first contact conductive layer comprises Ti, Cu, and the combination thereof ([0035]).

With respect to claim 38, Lee teaches said first conductive lines comprise Ni, Cu, Au, and the combination thereof ([0035]).

As to claim 39, while Lee, which teaches an organic material ([0030]) isolating base, fails to teach a material of said isolating base is glass, silicon, ceramic, or crystal material, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an isolating base made of glass, silicon, ceramic, or crystal material because all of these materials are commonly known in the art isolating materials. The substitution of one known equivalent technique for another may be obvious even if the

prior art does not expressly suggest the substitution (Ex parte Novak 16 USPQ 2d 2041 (BPAI 1989); In re Mostovych 144 USPQ 38 (CCPA 1964); In re Leshin 125 USPQ 416 (CCPA 1960); Graver Tank & Manufacturing Co. V. Linde Air Products Co. 85 USPQ 328 (USSC 1950). Particularly in light of claim 41, which requires the isolating layer to be an organic material.

In re claim 40, while Lee fails to teach an epoxy layer formed on back surface of the base, it would have been obvious to one of ordinary skill in the art at the time of the invention to form an epoxy layer on the back of the base because it is conventionally known in the art. A skilled artisan would form an epoxy layer on the back of the base in order to protect the base during the dicing process. The use of conventional materials to perform there known functions in a conventional process is obvious (MPEP 2144.07).

Regarding claim 41, Lee teaches said isolation layer comprises epoxy, resin, and the combination thereof ([0030]).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited but not relied upon teach the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (571)-272-1937. The examiner can normally be reached on M-Th 7:30 AM-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Baumeister can be reached on (571)-272-1722. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David A. Zarneke
Primary Examiner
May 15, 2006